

CERTIFICATION

I, Takao Kohno; 4-3, Tsuriganecho 2-chome, Chuo-ku, Osaka
540, Japan, hereby certify that I am the translator of the
documents in respect of an application for a patent filed in
Japan on the 26th day of September, 1996
(Japanese Patent Application No. 8-255050)

and certify that the following is a true and correct
translation to the best of my knowledge and belief.

KOHNO PATENT OFFICE



KOHNO Takao

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[Name of the Document] Specification

[Title of the Invention] Internet Television Receiver

[Claims for Patent]

[Claim 1] An Internet television receiver comprising:
television signal receiving means for receiving a television
signal;

picture signal outputting means for extracting a first
picture signal from the television signal received from said
television signal receiving means, and outputting it;

displaying means for displaying an image outputted from said
picture signal outputting means;

modulating/demodulating means for converting digital data
into a carrier signal by sound for transmission, and demodulating the
carrier signal by sound into the digital data for reception, in order
to transmit and receive a digital data via a telephone line;

data converting means for transmitting digital data to said
modulating/demodulating means, and receiving a digital data from the
modulating/demodulating means, and converting the received digital
data into a picture signal;

picture signal outputting means for supplying an output from
said data converting means to the displaying means;

character signal generating means for generating a character
signal and outputting it to said displaying means; and

character signal generation controlling means for detecting the state of transmission and reception of digital data of said modulating/demodulating means, and controlling said character signal generating means so as to generate a character signal to indicate the communication state; wherein

the character signal generated by the control of the character generation controlling means is displayed as a bar character which increases in accordance with the amount of the transmitted or received data, connection time of the telephone line, and the characters for indicating a communication state in a portion of the displaying unit.

[Claim 2] An Internet television receiver as set forth in claim 1, wherein the bar character which increases in accordance with the amount of the transmitted and received data of the character signal generated by the control of said character generation controlling means differs in color depending on the type of data.

[Claim 3] An Internet television receiver as set forth in claim 2, wherein the bar character which increases in accordance with the amount of transmitted and received data of the character signal generated by the control of said character generation controlling means differ in color depending on the state of communication.

[Claim 4] An Internet television receiver as set forth in claim 3, wherein the characters showing connection time of said

telephone line, and the characters showing the state of communication are displayed as being superposed on the bar character which increased in accordance with the amount of transmitted and received data of the character signal generated by the control of said character generation controlling means.

[Claim 5] An Internet television receiver as set forth in claim 4, wherein said characters showing the connection time of the telephone line and said characters showing the state of communication which are controlled and generated by said character signal generation controlling means are displayed alternately at a predetermined time interval.

[Detailed Description of the Invention]

[0001]

[Field of Industrial Application]

The present invention relates to an Internet television for receiving information through the Internet, taking in the information, converting it into video signals, and displaying it in a television receiver.

[0002]

[Prior Art]

Recently, owing to the popularity of personal computers, information is transmitted and received widely by using the Internet. In collecting information through the Internet according to prior

arts, it has become possible to transmit information ranging from characters which are sent by E-mail to images and sounds.

[0003]

Therefore, recently, more and more users are using the Internet as the site of information presentation. It is the WWW (World Wide Web) that is noticed as the server for providing such information.

[0004]

The reason why the WWW server is drawing attention is mainly due to the wide spread of client software for retrieving information by using a graphical menu. By the development of such software, it becomes easier to search for information on the network, and the traffic volume to the WWW server increased rapidly, and the users have come to notice the server as the publicity media, and many users have come to use it.

[0005]

To view information of the WWW server, as mentioned above, the client software is needed. For example, the client software is disclosed in pages 164 to 167 of "Internet Handbook for Corporate Users", an extra output of Nikkei Communications published by Nikkei BP (November 30, 1994).

[0006]

To view information of the WWW server through the Internet, it is required to have a personal computer and use a client software.

Actually, however, there are many people who are interested in such information, but not daring to buy a personal computer. They only want to view information through the Internet easily.

[0007]

In view of the above, an idea of employing an ordinary television receiver used in the general household as a displaying apparatus for displaying the Internet information is proposed. Accordingly, without having to purchase a personal computer, only a device for receiving the Internet information is built in or attached to the television receiver, and the television receiver fulfills its original function while the user is not viewing the Internet information, which is very convenient for the user.

[0008]

However, to review the information of WWW server of the Internet by such television receiver, it is necessary to connect once to the provider through the telephone line. Only by connecting the communication line with the provider, the information can be acquired.

[0009]

This connection by the telephone line is made through a modem, and the users of personal computer who make communications can judge if connection is made or not as follows. That is, since the modem is sending data by sound, it is judged by the sound if the data is communicated or the telephone is connected.

[0010]

Once the telephone line is connected, data is sent from the provider side. But the user does not know how the data is transmitted, and has no means for checking if all data has been transmitted or not. In the browser for the personal computer, accordingly, the data transmission state can be visually recognized by the user by graphical or numerical (expressing the data quantity) display on the screen.

[0011]

However, such graphical or numerical display is not easy to understand, and it may be considered to display together with the time or characters, but when the display is complicated, the user may be confused.

[0012]

Hitherto, the data reception state is indicated by such graphical display, but data may be transmitted by E-mail. In graphical display, however, there is no means for distinguishing whether data is transmitted or received.

[0013]

On the other hand, the personal computer is for personal use, while the television is mostly seen by the family, rather than serving for personal use, and the users rarely watch the television receiver at a short distance. It is hence desired that the display can be

confirmed from a long distance.

[0014]

[Problems to be Solved by the Invention]

The invention is devised in the light of the above problems, and it is hence an object thereof to present an Internet television receiver for displaying the communication state of received data from a provider or transmitted data to a provider graphically in a same display area, and further displaying characters, connection time and others, so that transmission or reception of data can be distinguished at a glance.

[0015]

[Means for Solving the Problems]

The present invention provides an Internet television receiver comprising:

television signal receiving means for receiving a television signal;

picture signal outputting means for extracting a first picture signal from the television signal inputted to said television signal receiving means, and outputting it;

displaying means for displaying an image outputted from said picture signal outputting means;

modulating/demodulating means for converting digital data into a carrier signal by sound for transmission, and demodulating the

carrier signal by sound into the digital data for reception, in order to transmit and receive a digital data via a telephone line;

data converting means for transmitting a digital data to said modulating/demodulating means, and receiving a digital data from the modulating/demodulating means, and converting the received digital data into a picture signal;

picture signal outputting means for supplying an output from said data converting means to the displaying means;

character signal generating means for generating a character signal and outputting it to said displaying means; and

character signal generation controlling means for detecting the state of transmission and reception of digital data of said modulating/demodulating means, and controlling said character signal generating means so as to generate a character signal to indicate the communication state; wherein

the character signal generated by the control of the character generation controlling means is displayed as a bar character which increases in accordance with the amount of the transmitted or received data, connection time of the telephone line, and the characters for indicating a communication state of in a portion of the displaying unit.

[0016]

The present invention provides an Internet television

receiver, wherein the bar character which increases in accordance with the amount of the transmitted and received data generated by the control of said character generation controlling means differs in color depending on the type of data.

[0017]

The present invention provides an Internet television receiver, wherein the bar character which increases in accordance with the amount of the transmitted and received data of the character signal generated by the control of said character generation controlling means differ in color depending on the state of communication.

[0018]

The present invention provides an Internet television receiver, wherein the characters showing connection time of said telephone line, and the characters showing the state of communication are displayed as being superposed on the bar character which increases in accordance with the amount of the transmitted and received data of the character signals generated by the control of said character generation controlling means.

[0019]

The present invention provides an Internet television receiver, wherein said characters showing the connection time of the telephone line and said characters showing the state of communication

are displayed alternately at a predetermined time interval.

[0020]

[Embodiments of the Invention]

Now the embodiment of the present invention will be described with reference to the drawings. FIG. 1 is a block diagram showing an embodiment of the invention. The reference numeral 1 denotes a tuner, 2 denotes a VIF (video intermediate frequency) circuit, 3 denotes a video detector, 4 denotes a video amplifier, 5 denotes a first switching circuit for switching a video signal, 6 denotes a CRT (cathode ray tube), 7 denotes a SIF (sound intermediate frequency) circuit, 8 denotes a sound detector, 9 denotes a sound amplifier, 10 denotes a second switching circuit for switching a sound signal, 11 denotes a mixing circuit, 12 denotes a speaker, 13 denotes a remote controller (not shown) or an operating unit in a front panel of a television receiver, 14 denotes a microcomputer for performing various controlling operations for a television receiver, 15 denotes an on-screen display (referred to as an OSD hereinafter) circuit for generating an on-screen character signal, 16 denote a modem, 17 denotes a carrier amplifier for amplifying a carrier sound supplied from the modem 16, 18 denotes an Internet circuit for receiving Internet information data from the modem 16, converting it into a video signal and outputting a sound signal, 19 denotes a video outputting amplifier for outputting a video signal supplied from the

Internet circuit 18, and 20 denotes a sound output amplifier for outputting a sound signal.

[0021]

Next, the operation of the invention will be described. First, for viewing a television broadcast, a desired channel is selected by the operating unit 13, and a tuning voltage in accordance with the selected channel is supplied by a microcomputer 14 to the tuner 1. Then a television signal of the selected channel is inputted to the VIF circuit 2, and then to the video detector 3 in which a video signal is extracted and supplied to the video amplifier 4. On the other hand, a television signal from the VIF circuit 2 is supplied also to the SIF circuit 7 where an SIF signal is detected, and then a sound signal is extracted by the sound detector 8 and supplied to the sound amplifier 9.

[0022]

In the Internet television 1, while the user watches the television broadcast, the microcomputer 14 connects the first switch 5 to the video amplifier 4 and the video signal is outputted to the CRT 6. At the same time, the microcomputer 14 also connects the second switch 10 to the sound amplifier 9, and the sound signal is supplied to the speaker 12 through the mixing circuit 11. The sound signal is changed in the sound volume by controlling the sound amplifier 9. This is realized by controlling the sound amplifier 9 by the

microcomputer 14 which is controlled by the operating unit 13.

[0023]

When the channel is selected, on the other hand, the microcomputer 14 controls the OSD circuit 15 so as to generate a character signal for displaying the channel number, and the character signal is supplied from the OSD circuit 15 to the first switch 5. At this point, the first switch 5 is controlled by the microcomputer 14 so as to switch over to the character signal from the OSD circuit 15. This OSD circuit 15 can display not only the channel character but also the sound volume adjustment, various adjustment modes and others.

[0024]

Next, a receiving operation of Internet information will be described. First, if the operation unit 13 selects the Internet connection mode, the microcomputer 14 controls the Internet circuit 18 to cause the modem 16 to connect the telephone line to the provider. The modem 16 places a telephone call to the provider to be connection thereto and receive data from the provider. At this point, carrier sound during the connecting operation from the modem 16 is amplified in the carrier amplifier 17, supplied to the mixing circuit 11 and outputted to the speaker 12 along with sound signals of the television broadcast.

[0025]

On the other hand, the data supplied from the provider is

inputted to the Internet circuit 18 via the modem 16, and converted into a video signal. Then, the video signal is outputted via the video output amplifier 19 and the first switch 5 to the CRT 6 to show Internet information. The first switch 5 is controlled by the microcomputer 14 to switch over to the video output amplifier 19 when the Internet connection mode is set.

[0026]

As described above, Internet information can be seen. Next, an operation for taking in Internet information will be described with reference to the block diagram in FIG. 1 and a flowchart in FIG. 2. First, the operating unit 13 sets the Internet connection mode (S1), the microcomputer 14 supplies the information to the Internet circuit 18 so as to display a menu screen, and the Internet circuit 18 outputs a video signal of the menu screen as shown in FIG. 3 (S2).

[0027]

The menu screen is roughly classified in several pieces of information which has been selected beforehand (including shop information, travel and sightseeing, new, education, amusement, local and enterprise information, original, search, E-mail). At the bottom of the screen, an outlook of remote controller is displayed. At the top of the screen, displayed are a tool bar having arranged therein a display area 31 for displaying URL and buttons for performing various functions, and a telephone line display area 33 for indicating a state

of the telephone line. The telephone line display area 33 includes an icon 34 indicating the state of the telephone line, that is, whether it is hooked or unhooked, and a line state display area 35.

[0028]

When desired information is selected in this menu screen, a lower layer menu screen is displayed. For example, when travel and sightseeing is selected in the menu screen in FIG. 3, a selection menu screen of the lower layer is displayed as shown in FIG. 4 (S3). When Hokkaido is selected from the menu, the icon 34 indicating a telephone is changed into an unhooked state, and the telephone line is connected to the provider (S4).

[0029]

When the telephone line is connected to the provider, the data is sent from the provider (S5). In this process of receiving data, how much data has been received at the present at the receiving end is shown in the line state display area 35 as shown in FIG. 5. For example, when the present data receiving quantity is 50%, a half of the area is displayed by changing the color of the bar as shown by hatching, so that it is easily recognized visually. Moreover, the present line state is indicated by characters (for example, in the "in communication") in the line state display area 35. Or, at every passage of a predetermined time (for example, a short time interval of 5 seconds), the characters may be changed to display of the time of

using the telephone line (for example, in the case of 3 minutes, "00:03"), and the characters and numerals are displayed alternately. Thus, the bar display portion increased in the reception state, and when 100% is received, it may be displayed by characters as "Reception is over" and the display of characters may be erased immediately.

[0030]

In this way, the present communication state, the communication time, and taking in state of the data can be recognized by seeing only one display area.

[0031]

Furthermore, in the bar display, the color is changed by the received data, and the type of data can be recognized. For example, when the data is text data, the bar is displayed in red, and in the case of image data, the bar is displayed in blue. This case is an explanation of reception data, and it is same when transmitting data. That is, when sending an E-mail to the provider side, data is transmitted through the communication line, and the data sending state is indicated by bar display same as mentioned above (characters and time same as when receiving). At this time, in the case of transmission, the bar is displayed in green. Thus, by the color of the bar, transmission or reception can be distinguished. Moreover, when transmitting and receiving E-mail, the bar display may be kept in green color both in transmission and reception of data, so that the

operation mode of communication can be judged by color (mode of E-mail, whether it is text data or image data from the provider) (S5).

[0032]

Consequently, when all the data from the provider is received (S7), the line state display area 35 displays only the communication time (S8). When another URL is predetermined, the telephone line is connected again, and the same operation is repeated (S9). When the telephone line is cut off without specifying URL, the display also stops. At this moment, clocking of the communication time returns to "0".

[0033]

Besides, in the state where the telephone line is connected (S4), and data is being received (S5), if data is not sent within a predetermined time (S11), the telephone line is cut off (S12).

[0034]

[Advantages of the Invention]

With the above configuration, the present invention permits the user to visually recognize the quantity of the data being transmitted and received, the communication state, and the communication time, in one display area of the Internet receiving screen.

[Brief Description of the Drawings]

[FIG. 1]

A block diagram showing an embodiment of the present

invention.

[FIG. 2]

A flowchart showing an operation of the invention.

[FIG. 3]

A diagram showing an example of display of a menu screen of the invention.

[FIG. 4]

A diagram showing an example of display of a menu screen of the invention.

[FIG. 5]

A diagram showing an example of display of the invention.

[Description of Reference Numerals]

- | | |
|----|--------------------------|
| 1 | Tuner |
| 2 | VIF Circuit |
| 3 | Video Detector |
| 4 | Video Amplifier |
| 5 | First Switching Circuit |
| 6 | CRT |
| 7 | SIF Circuit |
| 8 | Sound Detector |
| 9 | Sound Amplifier |
| 10 | Second Switching Circuit |
| 11 | Mixing Circuit |

- 12 Speaker
- 13 Operating Unit
- 14 Microcomputer
- 15 On-Screen Display Circuit
- 16 Modem
- 17 Carrier Amplifier
- 18 Internet Circuit
- 19 Video Output Amplifier
- 20 Sound Output Amplifier

[Name of the Document] Abstract of the Disclosure

[Abstract]

[Purpose] It is an object of the invention to provide an Internet television receiver for displaying the communication state of received data from a provider or transmitted data to a provider graphically in a same display area, and further displaying characters, connection time or the like, so that transmission or reception of data can be distinguished at a glance.

[Means for Fulfilling the Purpose] When the telephone line is connected to the provider, data is sent from the provider. In this process of receiving data, how much data has been received at the present at the receiving end is shown in the line state display area 35 as shown in FIG. 5. For example, when the present data receiving quantity is 50%, a half of the area is displayed by changing the color of the bar as shown by hatching, so that it is easily recognized visually. Moreover, the present line state is indicated by characters (for example, in the "in communication") in the line state display area 35. Or, at every passage of a predetermined time (for example, a short time interval of 5 seconds), the characters may be changed to display of the time of using the telephone line (for example, in the

case of 3 minutes, "00:03"), and the characters and numerals are displayed alternately.

[Drawing to be Selected] FIG. 5.

FIG. 1

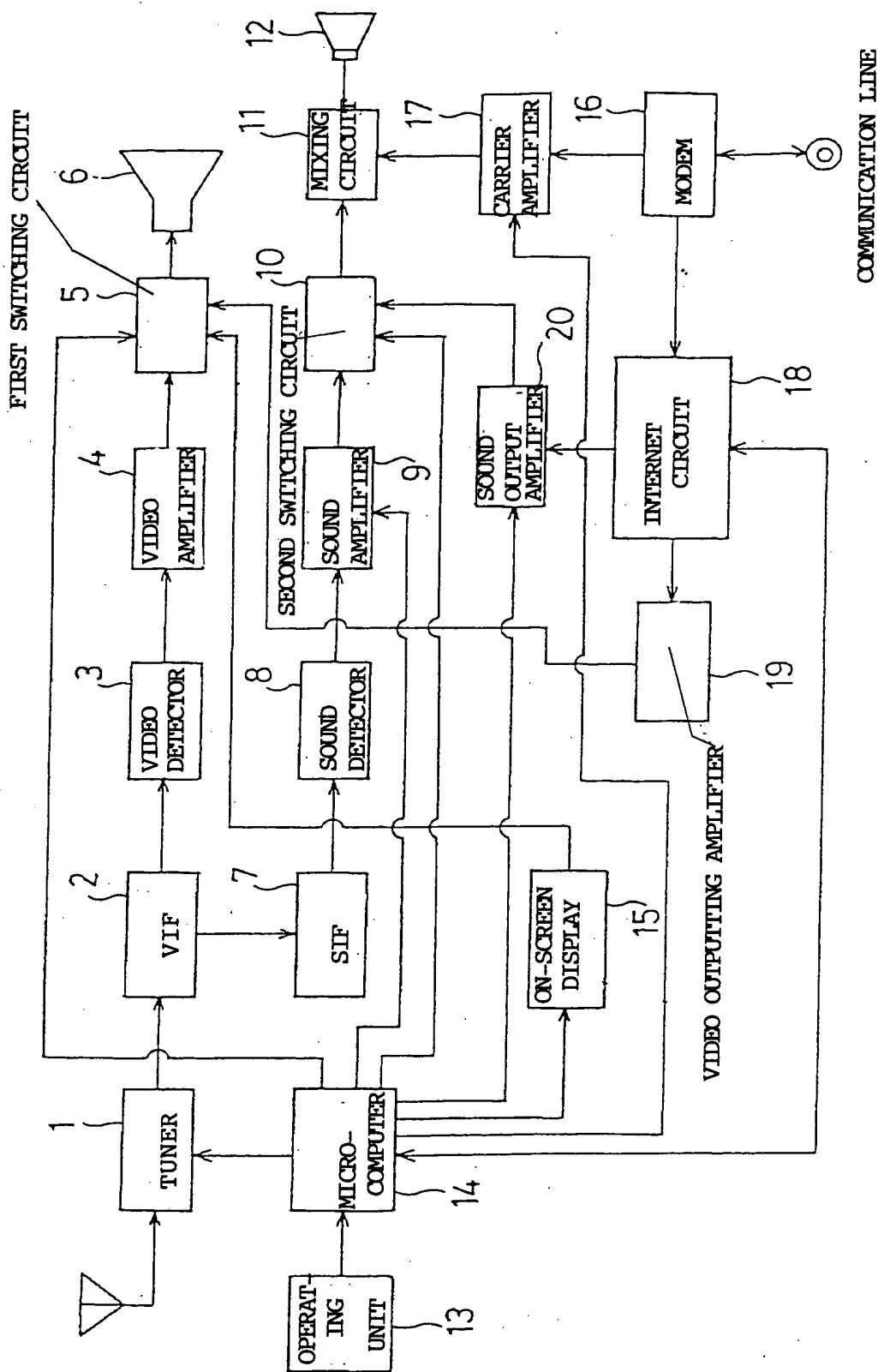


FIG. 2

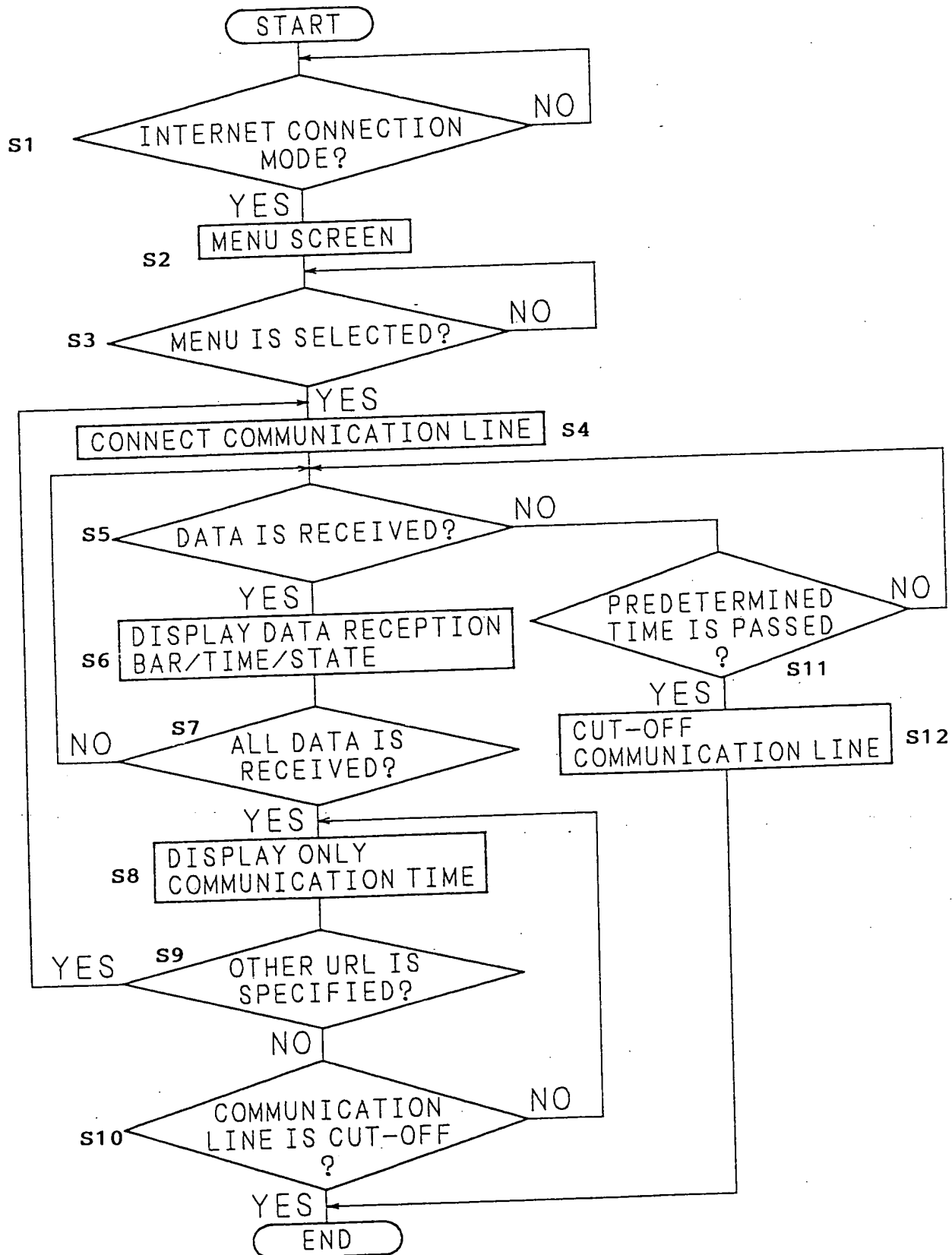


FIG. 3

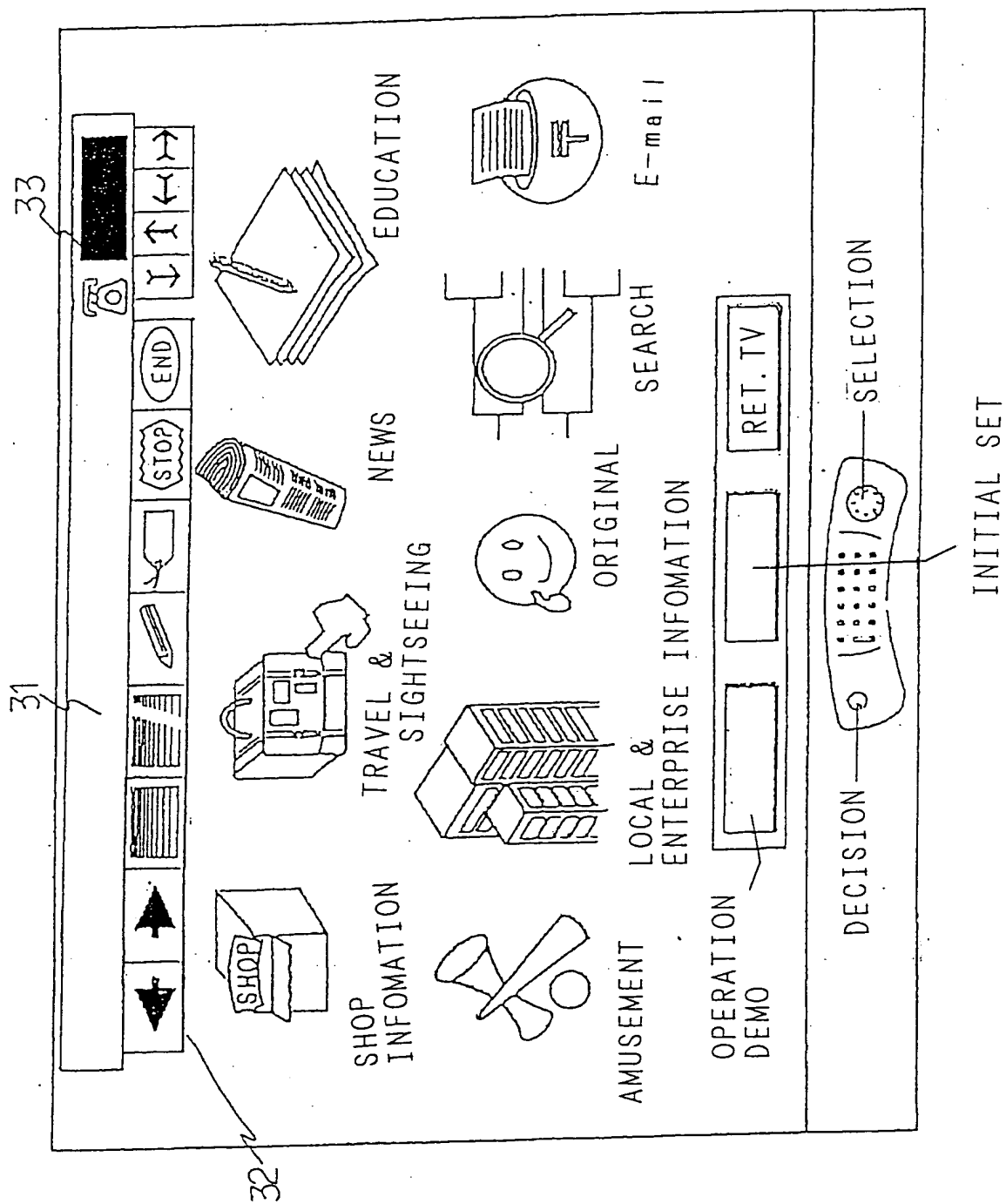


FIG. 4

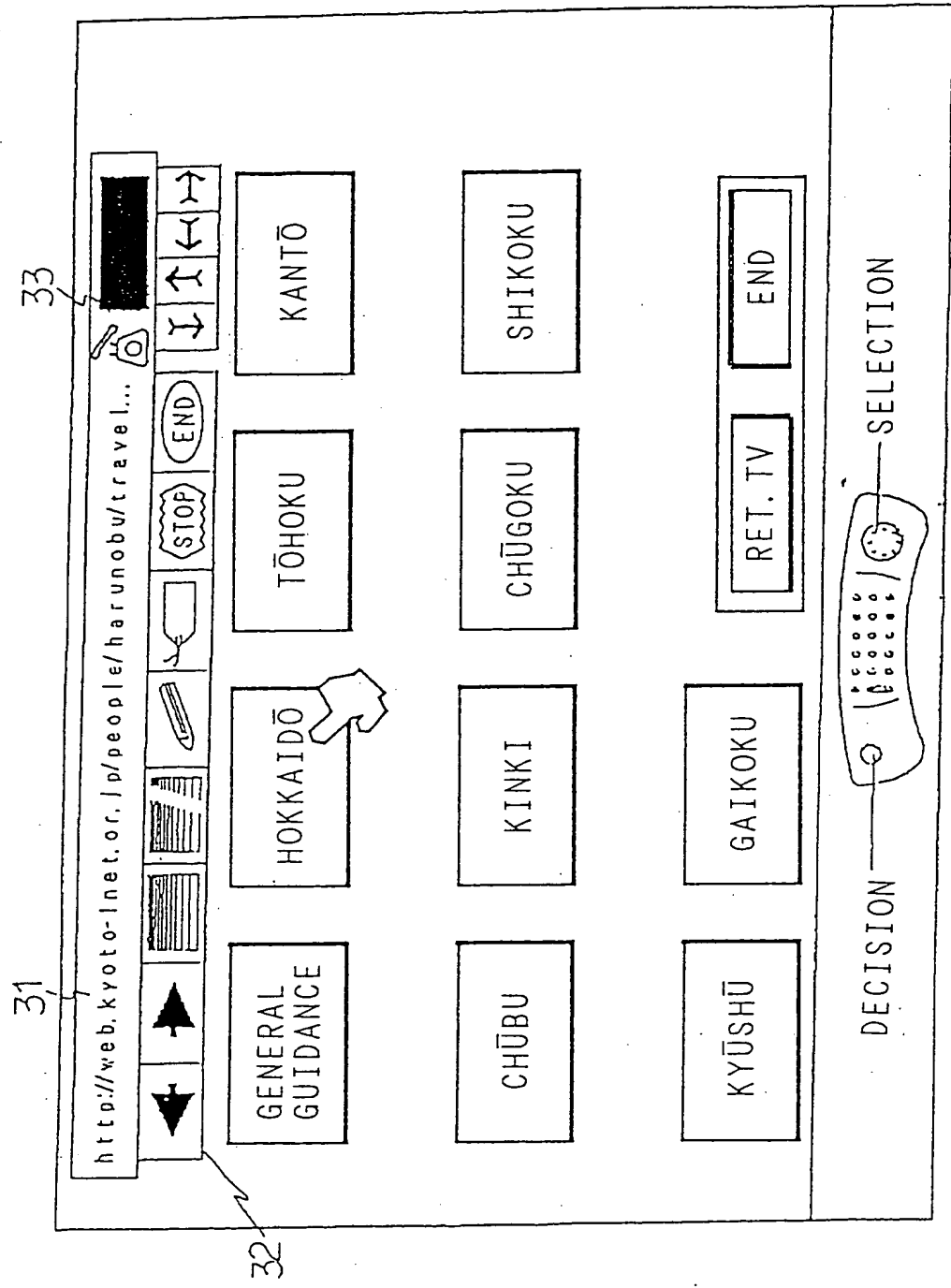


FIG. 5

